

What is claimed is:

1. A hybrid access system for connecting at least a single client data processor with a network, comprising:

a local area network (LAN) system:

a hybrid system manager connected to said LAN system:

a downstream router connected to said LAN system for transmitting information:

an upstream router connected to said LAN system for receiving information, said upstream bridge router including a Hybridware™ server.

a broadcast unit connected to said downstream router:

a downstream channel connected to said broadcast unit for high speed transmission of information on said high speed downstream channel:

an independent upstream channel connected to said upstream router, which operates at a lower speed than said downstream channel:

at least a single remote link adapter connected to said upstream and downstream channels: and

a corresponding at least a single client data processor connected to said remote link adapter.

2. The hybrid access system according to claim 1, wherein said independent upstream channel includes a telephone network.

3. The hybrid access system according to claim 1, wherein said independent upstream channel includes a cable TV network.

4. The hybrid access system according to claim 1, wherein said independent upstream channel includes a wireless transmission path.

5. The hybrid access system according to claim 1, wherein said LAN system includes a LAN switch and a router.

6. The hybrid access system according to claim 1, wherein said broadcast unit includes at least one of a group consisting of a cable TV headend, a wireless TV transmitter, a satellite transmitter or a cell site.

7. A method of accessing a wide area network from any or a plurality of client processors each connected to an asymmetric hybrid network including high-speed downstream and lower-speed upstream channels controlled by a hybrid system manager and a router server, including the steps of:

providing a polling signal from a hybrid system manager to client processors.

issuing an upstream channel connection request by lower speed channel, if no upstream data channel is currently assigned to a client data processor.

conducting login communications between the router server and the system manager.

verifying authorized user status at the system manager level.

allocating an upstream channel by high speed downstream channel message, and

sending upstream data over the allocated lower speed upstream channel of the asymmetric hybrid access network.

8. The method according to claim 7, wherein providing a polling signal includes polling clients in an idle state at a selected frequency level of polling.

9. The method according to claim 7, wherein providing a polling signal includes polling clients in a blocked state at a selected frequency level of polling.

10. The method according to claim 7, wherein providing a polling signal includes polling clients in a non-responsive state at a selected frequency level of polling.

11. The method according to claim 7, wherein providing a polling signal includes polling clients in idle and blocked states at selected first and

second frequency levels of polling, and polling of clients in an idle state occurs more frequently than polling of clients in a blocked state.

12. The method according to claim 7, wherein providing a polling signal includes polling clients in idle and non-responsive states at selected first and second frequency levels of polling, and polling of clients in an idle state occurs more frequently than polling of clients in a non-responsive state.

13. The method according to claim 7, wherein idle clients are polled multiple times during a poll cycle and polling of blocked and non_resp clients is distributed evenly over a poll cycle to assure that the latency for acquiring a channel for idle units is uniform.

14. The method according to claim 7, wherein polling includes grouping clients by state and polling within each group round robin.

15. A method of high speed remote access of a wide area network from any of a plurality of client processors each connected to an asymmetric hybrid network including high-speed downstream and lower-speed upstream channels controlled by a hybrid system manager and a router server, including the steps of:

issuing an upstream channel authorization request by lower speed channel, for upstream data channel currently used by a particular client data processor.

conducting login communications between the router server and the system manager.

verifying authorized user status at the system manager level.

authorizing specific upstream channel use by high speed downstream channel message, and

sending upstream data over the allocated lower speed upstream channel of the asymmetric hybrid access network.

16. A method of high speed remote access of a wide area network from any of a plurality of client processors each connected to an asymmetric hybrid network including high-speed downstream and lower-speed upstream channels controlled by a hybrid system manager and a router server, including the steps of:

sending a new client message to a plurality of hybrid routers, which provides client names.

broadcasting a poll message to a plurality of clients using client names.

recognizing a client name.

providing a poll response.

receiving a poll response.

reporting a client found to a system manager.

ceasing polling.

providing an address to the client which responded to poll.

receiving the address sent, and

configuring the client with the address provided.

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17. A method of transmitting data from an upstream transmit queue in an upstream transmitter node to a selected receiver node, comprising the steps of:

transmitting selected amounts of data from a transmit queue in a first node to a second node.

generating acknowledgments of data received by said second node.

eliminating from the transmit queue of the second node data acknowledgments which are redundant of other acknowledgments in said second transmit queue, and

filling open transmit queue spaces with additional data.

18. A method of determining polling frequency from an upstream communications mode of a hybrid access system with respect to a plurality of downstream nodes having polling status levels corresponding to activity states in which a remote link adapter may be set, comprising the steps of:

determining the priority status of predetermined remote link adapters in a hybrid access system; and

polling the remote link adapter having the highest priority status level.

19. A method of setting remote link adapter power level in a hybrid access system, comprising the steps of:

transmitting successive indications to a hybrid upstream router at selected different power levels.

confirming receipt of a first power level indication. and

setting the level of future transmissions to a power associated with confirmation of receipt.

20. A method of packet suppression in communication between first and second nodes having respective first and second transmit and receive queues. in which information packets having headers are transmitted from said first node to said second node. comprising the steps of:

loading the transmit queue of said first node with a first information packet:

loading a second information packet into the transmit queue of said first node:

checking the headers of said first and second information packets. and

suppressing one of said first and second information packets. if the headers are the same.

21. A method of credit administration between first and second computer nodes. for information amounts having predetermined information credit values. comprising the steps of:

sending a credit to a first computer node, which sets a response frequency;

receiving an information amount corresponding in value up to the amount of the credit received at said first computer node at said response frequency; and

sending a done signal to said second computer node indicative of the credit received less the amount of information received.

22. A method of operating a client node, comprising the steps of:
sending periodic operability indication messages during an active state,
receiving a poll message, and requesting channel connection.

23. A method of operating a server node, comprising the steps of:
receiving periodic operability indication messages during an active state,

sending a polling message, when a threshold interval has expired,
awaiting a poll response, and
entering a non-responsive state if response to polling is received.

24. A method of responding to detected quality levels in a communication channel, comprising the steps of:

detecting a quality characteristic with respect to a selected communication channel from a selected group of quality characteristics each which is defined by quantitative levels.

determining whether the quantitative level of the detected quality characteristic deviates with respect to a predefined norm, and

switching to another communication channel, if sufficient deviation is determined.

25. The method according to claim 24, wherein said group of quality characteristics includes time from last operability indication, signal to noise ratio, and error frequency.

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Abstract